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ABSTRACT

The purpose of this study was to explore the effects on college students of audiotaping classroom assignments. As part of their course requirements, students were asked to submit both a hard copy of their work plus an audiotape containing their assignments. During a 3-year period, 231 undergraduate education majors enrolled in 12 courses at 3 universities were asked to complete an open-ended questionnaire which described the taping experience. Qualitative analysis of questionnaire data generated 23 descriptive categories. A majority of the student responses indicated a positive taping experience. Students indicated taping contributed to academic, cognitive, and affective learning. Several categories suggested talking out loud onto a tape recorder provided students better opportunity to organize their work. Students were better able to detect and correct technical errors such as problems with grammar, sentence structure, and word meaning. Comprehension and internalization of material was improved. Students reported taping as a positive experience which facilitated their ability to interpret and "make meaning." In addition, students' comments suggested taping assignments provided a better vehicle for emotional expression. (Contains a table of data and 14 references.) (Author/CR)

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ED 427 351

Use of Constructed Speech to Improve Classroom Performance

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Abstract

The purpose of this study was to explore effects on students of audiotaping classroom assignments.

As part of their course requirements, students were asked to submit both a hard copy of their work plus an audiotape containing their assignments. During a three-year period, 231 undergraduate education majors enrolled in 12 courses at three universities were asked to complete an open-ended questionnaire which described the taping experience. Qualitative analysis of questionnaire data generated 23 descriptive categories. A majority of the student responses indicated a positive taping experience. Students indicated taping contributed to academic, cognitive and affective learning. Several categories suggested talking out loud onto a tape recorder provided students better opportunity to organize their work. Students were better able to detect and correct technical errors such as problems with grammar, sentence structure, and word meaning. Comprehension and internalization of material was improved. Students reported taping as a positive experience which facilitated their ability to interpret and "make meaning." In addition, students' comments suggested taping assignments provided a vehicle for emotional expression.

INTRODUCTION

What type of knowledge do teachers or prospective teachers draw upon when they reflect? (Han, 1995, p.228).

The Problem

What is a good teacher? Debate continues to rage regarding what constitutes an effective teacher. In an effort to promote quality teachers, Colleges of Education have adopted models under which programs highlight the production and consumption of research, teaching and transmission of knowledge, and the application and integration of knowledge (Boyer, 1990). Therefore, in conjunction with professional training, preservice teachers must possess both cognitive and affective capacities. Teachers require the ability to establish a professional knowledge-base, as well as communicative expertise to share information with others. All learning experiences need to be intervened with positive emotional support.

Kostelnik, Stein, Whiren and Soderman (1993) identifie empathy, authenticity, acceptance, respect and warmth as essential components for a helping professional. In addition, should the affective dimension be considered part of the knowledge repertoire of effective teachers? If so, what tasks would nurture individual preservice teachers' affective capacities?

Courses under the general rubric, "Foundation of Education" provide preservice teachers an extensive historical and theoretical framework with which to establish a teaching philosophy. Teachers' personal philosophies generate teaching and learning

strategies. Methods classes provide opportunities to practice, refine and build upon teaching methodology.

The aim of teacher education is for preservice teachers to establish teaching and learning environments reflective of current research about children and how children learn. In doing so, teachers should learn to appreciate and negotiate a broad range of learner differences. Despite progressive university teaching, preservice students will frequently resort to teaching, not as they have been trained, but as they have been schooled (Lortie, 1975). The task for teacher educators is to identify strategies in teacher education which dissuade students from the socialization of traditional schooling experience and move practice to reflect current research.

Theoretical Framework of Private Speech

According to the socio-cultural theory of Vygotsky ([1934] 1987), social experiences scaffold children's ways of thinking and making meaning of the world. Thus intellect is a social construction. Ordinarily, language is perceived as a means with which to elicit information or express feelings and thoughts with others. In contrast, the function of private speech or self-talk is not for others, but for the self to "organize, understand, and gain control over [the] environment" (Berk, 1995, p. 50). When children talk to themselves, they self-regulate actions, and, in doing so, promote their understanding of the world (Berk and Winsler, 1995).

Language is a tool with which humans represent symbols. Words provide the means with which to describe and draw interpretation. Symbolic goals and/or signs are created by the context of a culture and become the links between social and psychological understandings (Vygotsky, [1934] 1987). For Vygotsky, language is perceived as the

primary consideration for thought. The greater the ability to symbolically represent, the more complex the mental processing.

Unique to a socio-cultural theory is the understanding that symbols are not biologically, but socially generated (Vygotsky [1934] 1987). This places a greater responsibility on adults to provide rich language experiences for children. The greater the opportunity for social interaction and the use of language, the greater the ability of children to construct physical and social meaning.

Private speech refers to speech spoken aloud to the self or to no one in particular (Berk, 1986a, p.671), and constitutes from 20 to 60 percent of preschool and elementary school children's language (Berk, 1986a). Children's self-talk is perceived as a critical transition between vocal speech to inner verbal thought (Berk, 1985). Within a Vygotskian perspective, language significantly contributes to children's evolving intellect. As children evolve in cognitive complexity, processing becomes automatic and internalized. That is, talking aloud goes within the child.

According to Berk (1986b), children in the preschool and early school years will use private speech to master their behavior and thinking, but that as vocal speech and thinking becomes internal, self-talk will decrease. In other words, self-talk has a significant regulatory role in cognitive development. However, research indicates that while children may evidence private speech during a difficult task, there may not be simultaneous success in performance. Children's self-talk serves to support understanding and subsequent task performance at a later time. Research indicates private speech declines with age and most children by the age of 9 discontinue using self-talk (Berk, 1986b).

Metacognition and Self-Regulation

Teachers are daily engaged in diagnosing, developing, revising and implementing lessons. They must be prepared to provide meaningful experiences, as well as nurture, and communicate with children, parents and other educators (Manning and Payne, 1996). Therefore, in order to optimize learning environments, the minute-by-minute operations of classrooms must be monitored and adjusted constantly. Where does the knowledge source arise for teachers to accommodate such demands?

Metacognition, thinking about our thinking, refers to the mental processing necessary for teachers to effectively engage classroom complexity (Manning and Payne, 1996). Although there are different interpretations of the meaning of "metacognition,". for the purposes of this study the word refers to the ability to regulate cognition. (Brown and DeLoache, cited in Manning and Payne, 1996, p. xx).

Metacognition (regulation of cognition) includes: regulatory functions such as error detection (Brown and DeLoache, cited in Manning and Payne, 1996), problem defining, self-guiding, self-coping, self-checking and self-reinforcing while engaged in performing tasks (Meichenbaum, cited in Manning and Payne, 1996). This second interpretation of metacognition is more dependent on task and situation. "Self-regulatory cognition is critical to schooling. Teachers and students must be able to focus attention, define problems, detect errors, persist at tasks, monitor concentration, and bring tasks to completion" (Manning and Payne, 1996, p. xx).

There are particular conditions which may promote metacognitive processes, such as "performing a task that falls optimally somewhere between too familiar and too unfamiliar" (Manning and Payne, p. xix). Researchers explain that if the task is overly

familiar, thinking becomes automatic; one thinks about other things, and metacognition is not required. In contrast, if a task is too difficult, thinking remains focused on task completion. At this primary, purely cognitive level, cognition places full thought on the task. This effort may become so engaging that negative emotions may make task success and satisfaction more difficult. Because of this concerted cognitive effort, thinking will not move to the secondary level of metacognition. Only after moving to this secondary level may an individual think about the cognition itself (Manning and Payne, 1996). Until teachers think about and act upon the dynamic nature of teaching and learning, progressive teaching will not occur.

> The knowledge and recognition relate to initiating facilitative and positive mental action to enhance teacher self-awareness, improve teacher self-acceptance, and reinforce self-guidance. In addition to motivating mental action to improve the personal dimensions of the teacher, metacognitive awareness and strategies for personal coping skills are addressed in order to decrease teacher stress, anger, anxiety, frustration, and boredom. (Manning and Payne, 1996, p. xxi).

Research indicates teachers who possess mental coping strategies, i.e., self-esteem, (Brookower, Beady, Flood, Schweitzerr and Wisenbaker, 1979;) and self-efficacy (Ashton, 1984) are more effective teachers. Teacher education, in addition to establishing professional knowledge to allow meaningful interactions between teachers and learners, must provide opportunity for preservice teachers' understanding of the learning dynamic occurring within themselves as learners. This addresses individual learner responsibility. Learners who regulate mental processes feel more in control of the learning process and more able to initiate action.

Metacognition, personally defined, is regarded as a higher mental plane of functioning (Manning and Payne, 1996). "Metacognition of teachers' professional use is defined as the awareness and regulation of teachers thinking about their professional role in the teaching profession, such as planning, interactive teaching, and organizing the classroom" (Manning and Payne, p. xxi).

Vygotsky (1978) believed learning occurs on two different planes; one within the social context, between individuals (interpsychological), the other impacted by each person's unique personal history (intrapsychological). It is critical that preservice teachers be mindful that their mental constructions occur at these two planes. Teachers will be then able to genuinely reflect upon practice, understand what is occurring, and initiate restructuring strategies. Being able to regulate the cognitive processes occurring within individuals will enhance their ability to reflect. Reform in public schools will occur only when teachers, through metacognition, are able to appreciate the dynamic of the process of learning.

DESIGN AND METHODOLOGY

At the conclusion of each semester undergraduate education majors (N = 231) across 12 courses at three universities completed open-ended questionnaires. Courses included: Communication Arts, Child Development, K-4 Curriculum and Kindergarten Program. Two universities were located in the Southeast, the third in the Southwest.

At the beginning of each semester students were told that all assignments were to be tape-recorded and an audio cassette was to accompany hard copy throughout the term. Students were given an option of regular or micro cassettes and were told equipment and

tapes would be provided if necessary. Students were told they would need to supply the tapes because one of the instructors was visually impaired.

The students were given a questionnaire with included three open-ended items: 1) Describe the experience of taping your assignments, 2) Did taping help you? How? Did you find you made changes in your work? Did it inhibit your learning at all? How? 3) Did talking aloud on a tape recorder enhance your understanding of the material? Did it affect you in any other ways? Discuss.

Qualitative analysis (Bogden and Biklin, 1982) compared and contrasted student responses until trends were identified and categories formed.

RESULTS

Analysis of the questionnaire data revealed the categories shown in Table 1 (next page). The student comments which generated these categories are shown following the table.

Student-Generated Categories

Ambiguous/General	75	Organization	1
Comprehension	49	Performance	2
Concrete	7	Perspective	6
Connections	19	Professionalism	9
Continuity	32	Reflection	12
Emotion	20	Reinforcement	5
Equipment	7	Responsibility	3
Instructor Accommodation	23	Language Usage	152
Internalize	42	Time	10
Justification	1	Transition	6
No	67	Voice Aloud	14
General No	20		
Negative Voice	6		
No Grammar Change	23		
No Thought Change	18		

TABLE 1

Student Comments Which Generated Categories in Table 1

Ambiguous/General: The majority of the comments were non specific and brief: "yes," "I am not sure," "most definitely." Others elaborated to suggest a positive experience: "At first I was hesitant not found out it wasn't a big deal."

Comprehension: Comprehension was described in different ways: "I was really able to listen to myself and to learn the material twice; first my writing, and

then listening and understanding of the question," and, "this experience helped me to process the assignment and understand it better."

Concrete: This category referred to student comments that described the taping as a "hands-on, minds-on experience." Another student said, "Hearing my words made the concepts I spoke of seem more real and solid. It made it more alive."

Connections: "It helped me bring it all together," and "I was able to finally put things together." Another student indicated they used the experience to make connections outside the class, "This helped with other things I have written."

Continuity: Students reported enhanced understanding, and comments referred to the flow of the material. "I saw it as a way of forcing me to think about how my writing sounds and consider if my thoughts are complete," "hearing my assignments helped me realize whether or not they made sense."

Emotion: "I can put feeling into my work that you don't get when you read it." Another student said, "I could feel my words or my intentions, my thoughts and feelings, I could feel good about who I am and the way I think." Still another student commented, "It was great to listen to the voice inflections. I liked reading because I could use varied intonations to express how I really felt that you can't get just from a hard copy."

Equipment: Student comments indicated a negative trend when describing the mechanics of the taping experience: "It was difficult to find a tape recorder and tapes for each assignment."

Instructor ADA Accommodation: Students indicated taping for ADA consideration was not an inconvenience. More than half of these students suggested the importance of ADA flexibility. "It was something I could do if it helped you; I enjoyed providing for your special need; if it helps you, it is worth it."

Internalize: Four trends evolved: The first trend specifically cited or described a sense of internalization: "I enjoyed the freedom to be creative and engage in higher processing and development." A second trend indicated both

positive and negative experiences with respect to the flow of understanding wrought by the taping: "I thought about educating someone who was unfamiliar with the material. It made a difference in the way I thought about the material." However, some negative comments were also generated: "I felt that I hadn't done as good of a job when I read it out loud on tape like that." The last trend students reported was a greater emphasis because of the taping: "It helped me emphasize certain points and get my points across easily."

Justification: "It makes you want to further justify your responses."

General No: A few comments in this category indicated a general negativity towards the taping: "I felt it was not necessary to provide both a hard copy and a tape." However, a majority of the comments were non-specific and brief "no," "not really," and "I don't think so." Some students did not enjoy the taping experience: "It was hard to hear my own voice." Some comments indicated students had identified errors in their work, but were reluctant to revisit and change the hard copy, while other reported the taping of assignments did not mediate thought process.

Organization: "My organization was better as a result of realizing the paper would be heard and not read." Other comments in this category included continuity, technical, and how taping assignments impacted the ways in which students organized the material.

Listening to Voice: Two responses described the experience of listening to their voice as positive. However, several students reported listening to their voice as a negative experience.

Performance: "I even read it after I typed it, but something about reading it on tape, knowing your grade will come from that makes me nervous. Not in the way I thought about the material, but in the way I presented it."

Perspective: Comments indicated students thought differently about the material: "I think it was a worthy experience, it made me think about how someone else would interpret my writing. It was like listening with a third ear."

Professionalism: "It made me appreciate what I was doing and it gave me a personal pride in my work."

Reflection: Comments evidenced the taping provided students an opportunity to additionally think about their work. "It makes you think and ponder your responses more."

Reinforcement: These responses described the taping as reinforcing the course material: "It reinforced it in my mind and helped me to remember more by saying it aloud."

Responsibility: Some student comments indicated the taping experience promoted a greater sense of responsibility: "I felt more directly responsible for my work",

Language Usage: Several students recognized various language problems, including typing errors , grammatical errors, sentence flow and word meaning corrections. "When reading something out loud, you notice grammatical errors. "I came across errors in sentences and word changes."

Time: A few students said the taping took too much time: "It took up more time than I have free in my schedule." Other comments were more positive: "I did not mind taping at all. It did not take long and it was a new experience."

Transition: Responses indicated several students changed their attitudes regarding the taping experience. "At first I thought this would be difficult, but it got better with time."

Voice Aloud: These responses suggest students became aware of the need to coordinate their written and oral communication. Some students reported hearing a need for change: "After I read it out loud I had a better sense of the material. Taping allowed me to listen to my voice and language usage."

DISCUSSION

In preparing assignments for all courses, students were expected to synthesize readings from text(s) and journal articles and then relate them to class discussions. The instructor expected students to philosophically conceptualize their responses, state

arguments grounded in current research, and draw implications for their future practice. Typically students had several days to prepare the assignments. The criteria needed to satisfy the assignments were conceptual, and students had to apply fully to the task. Thus, most students reported this was the first class in which they were asked "to think." Therefore, for most students, the nature of the task was an effort of primary cognition. Many students reported the enormity of the thinking task they had been assigned. To this effort of cognition, was added the exercise of tape-recording the hard copy.

The first level of cognition was clearly indicated by Question 2 (Did taping help you? How? Did you find you made changes in your work? Did it inhibit your learning at all? How?). Although not deeply reflective, a large majority of students indicated taping the assignments caused them to make changes in their work: "I often changed sentences and word order and arrangement while reading the assignment." "I think I aided my studies because not only did I write/type the material, I also read it aloud. It helped with editing." "Great way to assess work." "I plan to do this in the future in other classes. I can revise assignments by doing this ahead of time."

However some students moved to a second level of change. These students indicated clear meaning-making in the categories of continuity ("I found myself reading my other papers out loud to find mistakes and see if they flowed." "It also helped me to hear the fluency of my words."), and transition ("At first I was somewhat intimidated by taping my assignments. Then it became a learning experience for me." "Initially I taped the assignment because it was required; however, I felt I gained a lot by reading the material. I typically do not revisit work like I should. This provided me a valuable

opportunity to relook at my work." "It was an interesting experience. I was self-conscious at first, but gradually became more comfortable with it.")

At a third level of change, comprehension, students indicated a better understanding of the course material: "I actually found out I knew what I had written." "Reading out loud made the information process clearer." "It did affect the way I thought about the material. The first time I read it out loud, I made changes and then I gained a better understanding of the material."

Finally, a fourth level of deeper meaning was identified as "internalization." These students' comments indicated meaningful connections between the material and their personal philosophies. The ownership of the material clearly distinguished the depth of their understanding: "It helped to solidify my ideas." "Sometimes after reading I thought the paper was better than when I wrote it." "Taping the assignment really made me think above what I was learning in developing my journey" "When I read myself the assignment, I would ask myself the question 'Do I really believe in this'?"

In all, these four trends indicate students engaged in change. At the beginning level, students were involved in the technical changes; however, other students' thoughts appeared to be modified by the taping experience which appeared to promote student organization and responsibility: "Yes, sometimes I would think 'How could I have written something like this'?" "Yes, a lot of times it made me feel I should have worked harder on it." "I felt more directly responsible for my work." "My organization was better as a result of realizing the paper would be heard and not read."

Audio taping course assignments seems to have satisfied the definition of a "task falling optimally somewhere between too familiar and too unfamiliar" (Manning and

Payne, 1996, p. xix). Tape-recording equipment is commonplace; a technology with which all students are familiar. However, the data also indicated no student had previously tape-recorded college assignments. Tape-recording assignments was thus challenging for many students. ("It was different. I have never been comfortable being taped audio or video." "Taping was useful because you realize things sound different when you talk as opposed to when you write." "I don't think it changes what I thought just helped me make it sound better and I could verbally emphasize what I thought was most important.")

A primary role of the classroom teacher is to communicate and disseminate information. Yet, many preservice teachers are reticent to speak aloud in college classes. Data revealed that for some students coordinating hard copy with voice was a significant challenge: "I dreaded reading at first and then it seemed to help." "I found it kind of annoying at first, but then after I got used to it, I didn't mind." For others, the taping experience proved difficult: "I don't mind taping but I don's have a tape recorder. I have a CD, the main interest of most of us today." "It made me feel nervous;-it was a big inconvenience because I don't even own a tape recorder."

For a significant numbers of students the taping experience was positive: "I think recording our work helped both of us. If I were you I would require taping as well as hard copy." "As teachers, we will always have the characteristic of being flexible. I enjoyed taping my papers particularly if it helps the professor."

Data suggested metacognitive applications were occurring at several levels. Students' comments generated a sense of how the taping concretized the learning: "I thought it was very effective because we could see and act out our ideas." "Yes, it made

it seem more real." If the goal of teacher education is to promote understanding and reflection, data indicated tape-recording assignments may be a viable tool for thinking: "I would listen to my recording aloud and then I would think 'I had better believe this stuff if I am speaking it.'" ."It added to the depth to which I internalize the material."

In addition, tape-recording assignments may be a vehicle to improve teachers' affective capacity and their ability to engage learners with appropriate emotion that is so critical for effective teaching and student learning. The data indicated the tape-recording experience provided an opportunity for many students to use their voice to express emotion. Affirmation, doubt, conviction, and responsibility were reported: "Helped maintain thoughts from research." "Yes, it forced me to think more seriously about what I was saying."

For most education undergraduates, the progressive philosophies taught at the university have not been personally experienced. Therefore without prior knowledge, understanding the concepts may be incongruent to their current belief structure, and therefore difficult to comprehend.

Thus the question, "How do we as educators identify ways in which schools of education may nurture progressive teachers, many of whom have no personal experience," remains. Methods courses and practicum experiences are not adequate to mediate the many years of traditional schooling. Current literature addressing preservice education suggests reflective practice as a means to reform. If however, reflection is to be effective, preservice teachers first must establish a knowledge-base regarding children and how children learn. Without appropriate content, teachers have nothing to reflect upon. The consequence of minimal understanding is a preoccupation with "activity for

the activity's sake." Teachers must ask the question, "Why am I doing this activity with the children," and not just presume the activity ensures particular learning. Further, teachers' implementation of an activity, without an understanding of child development undermines reflection.

For the most part, students demonstrated flexibility, and adapted to satisfy the taping request. Most students even moved to varying levels of cognitive regulation, while some evidenced deep reflection. For others, however, the taping assignment was not as positive. In fact, fairly consistently, when students reported "no" to the first question, they responded "no" to the second and third questions as well. Nevertheless, the negative comments are worth considering. For example, time constraint problems were evident: "No, I didn't mind doing it, the problem was my tape recorder and time." "Most students feel it was a huge problem, but it was actually simpler. The only problem was the taping and typing. I type very slow so I must spend a lot of time on it. It would benefit me more if I only had to do one or the other."

Some students reported listening to their own voice as being a negative experience: "I've never had to tape any assignments before so it was a really different experience. I really don't like taping things because I don't like the way I sound."

Several students reported tape recording did not facilitate any change in writing: "No because I would record after my final copy was printed." "No, I did not make any grammatical changes, but I noticed if my thoughts were clear." "No, I read my papers aloud anyway."

Finally, a few students indicated taping assignments provided no change of thought: "No. My opinions are very strong. I do not change my opinion easily nor my

train of thought. I do not have problems writing my opinions and beliefs. However, I do have a problem verbalizing these beliefs in conversation."

CONCLUSION

What makes a good teacher? Both affective and cognitive capacities are needed to respond effectively to a wide range of student differences. The goal of teacher preparation is to build a knowledge-base from which teachers may reflect and individualize interventions. The goal is to insure that practices are not prescriptive or arbitrary. Teachers who are aware of the importance of reflectivity will think about what they are doing and about to do. In other words, they will respond to situations and not react from a prearranged model.

While there is no single tool with which to promote teachers' reflectivity, it appears that perhaps a greater effort in promoting constructed speech (i.e., taping lessons and assignments) will benefit preservice teachers and thus the children they will be engaging.

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